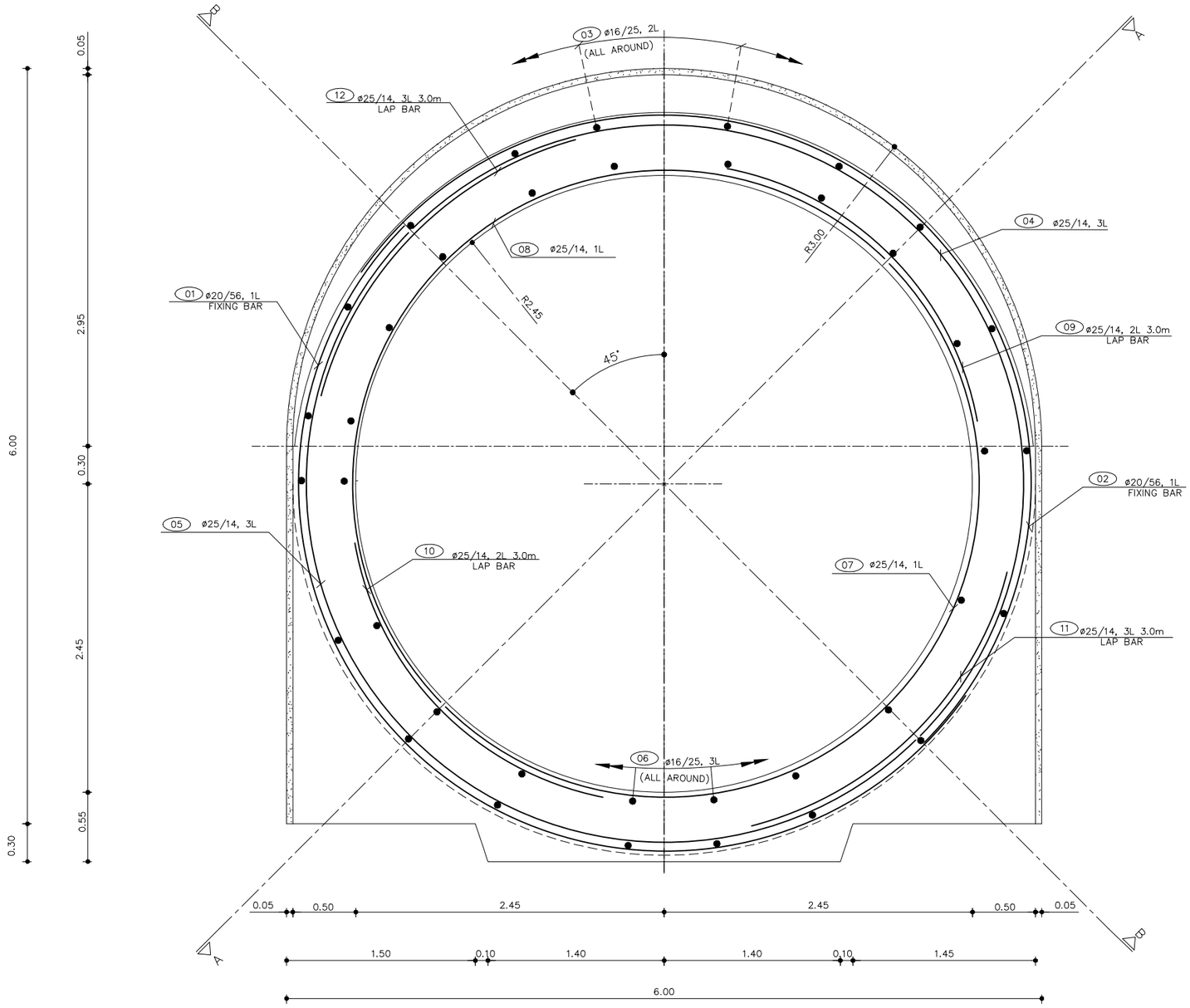
NOTES:
1. Dimensions are in meters(m) unless otherwise specified.
2. All elevations are in masl.
3. Refer UTK-032064-HRT-CL-BP-102 Rev-A for block plan.

LEGEND:

-//-//- Construction Joint

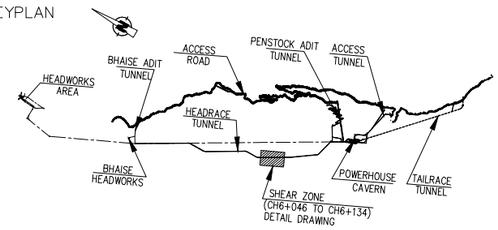
—■— Coupler



SECTION 1-1
BLOCK 58A
SCALE 1:20

SCALE 1:20
-0.20 0 0.20 0.40 0.60 0.80 1.00 [m]

KEYPLAN



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK-012065-4420-W 020	Headrace Tunnel Concrete Tunnel,Typical Section-Shear Zone Sections.

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

☐ Approved ☐ Approved as noted ☐ Return for correction ☐ For Information

DATE: ..... SIGNATURE: .....
ENGINEER - JVNL

UPPER TAMAKOSHI HYDROPOWER LIMITED
Kathmandu,Nepal
UTKHPL

ENGINEER JV NL
CONTRACTOR SINOHYDRO CORPORATION LIMITED

UPPER TAMAKOSHI HYDROELECTRIC PROJECT

Contractor:

	Cad. Sign.	Orig.Sign.	Date
Drawn	Jan Jiwan		10.03.2019
Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

Drwg. Ref. :

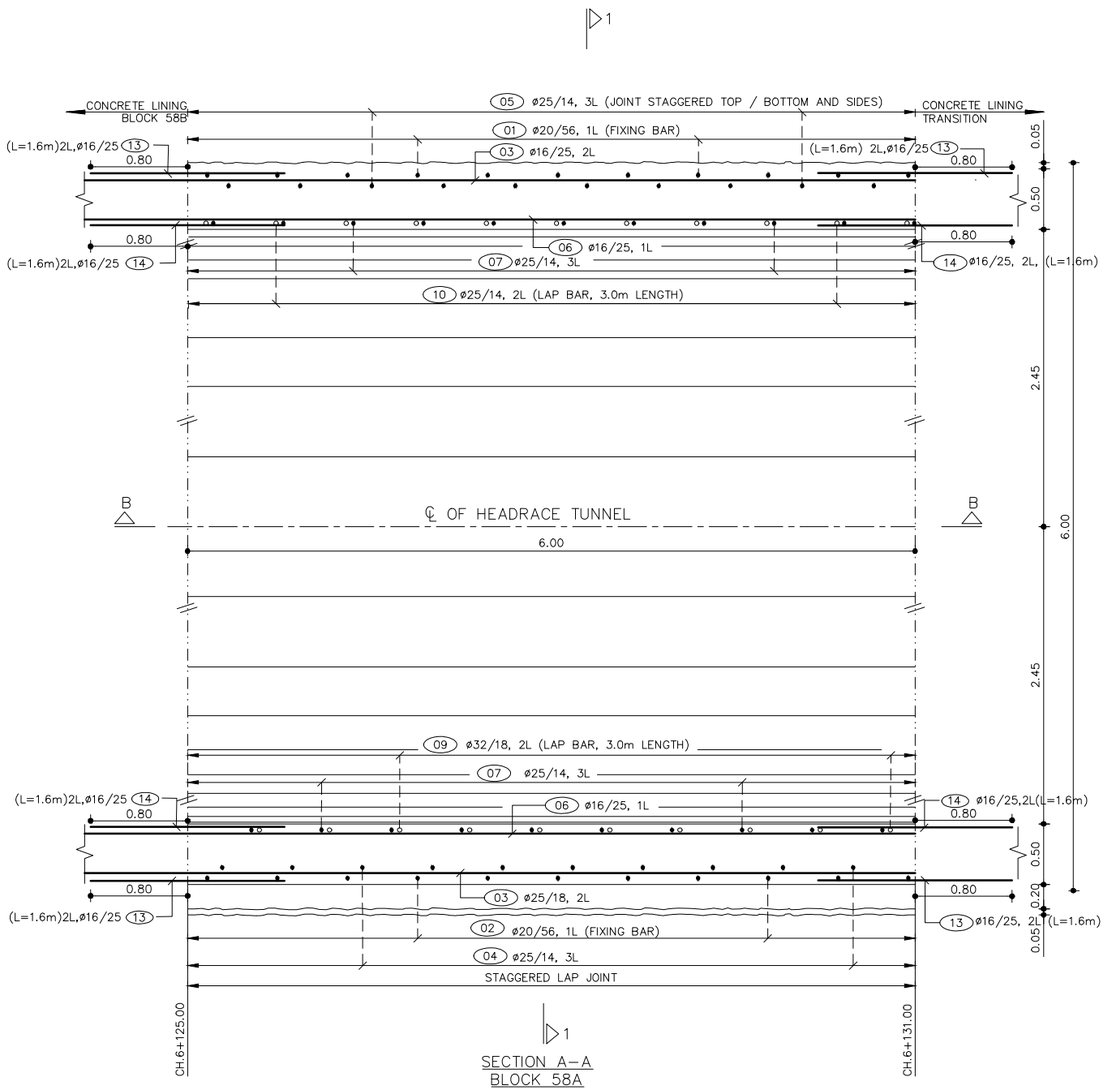
HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58A
CH.6+125.00~CH.6+131.00
REINFORCEMENT EXECUTION DRAWING

Scale A1 1:20
Scale A3 1:40

Drwg. No.: UTK-032064-HRT-CL-SZ-R-58A1 REV. A

NOTES:
1. Dimensions are in meters(m) unless otherwise specified.
2. All elevations are in masl.
3. Refer UTK-032064-HRT-CL-BP-102 Rev-A for block plan

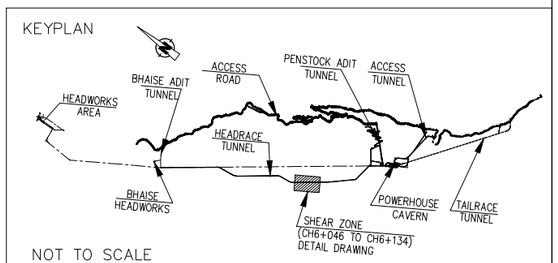
LEGEND:
-//-//- Construction Joint
—■— Coupler



SECTION A-A
BLOCK 58A
SCALE 1:25

SCALE 1:25
-0.25 0 0.25 0.50 0.75 1.00 1.25 [m]

KEYPLAN



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK-012065-4420-W 020	Headrace Tunnel Concrete Tunnel,Typical Section-Shear Zone Sections.

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

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Kathmandu,Nepal
UTKHPL

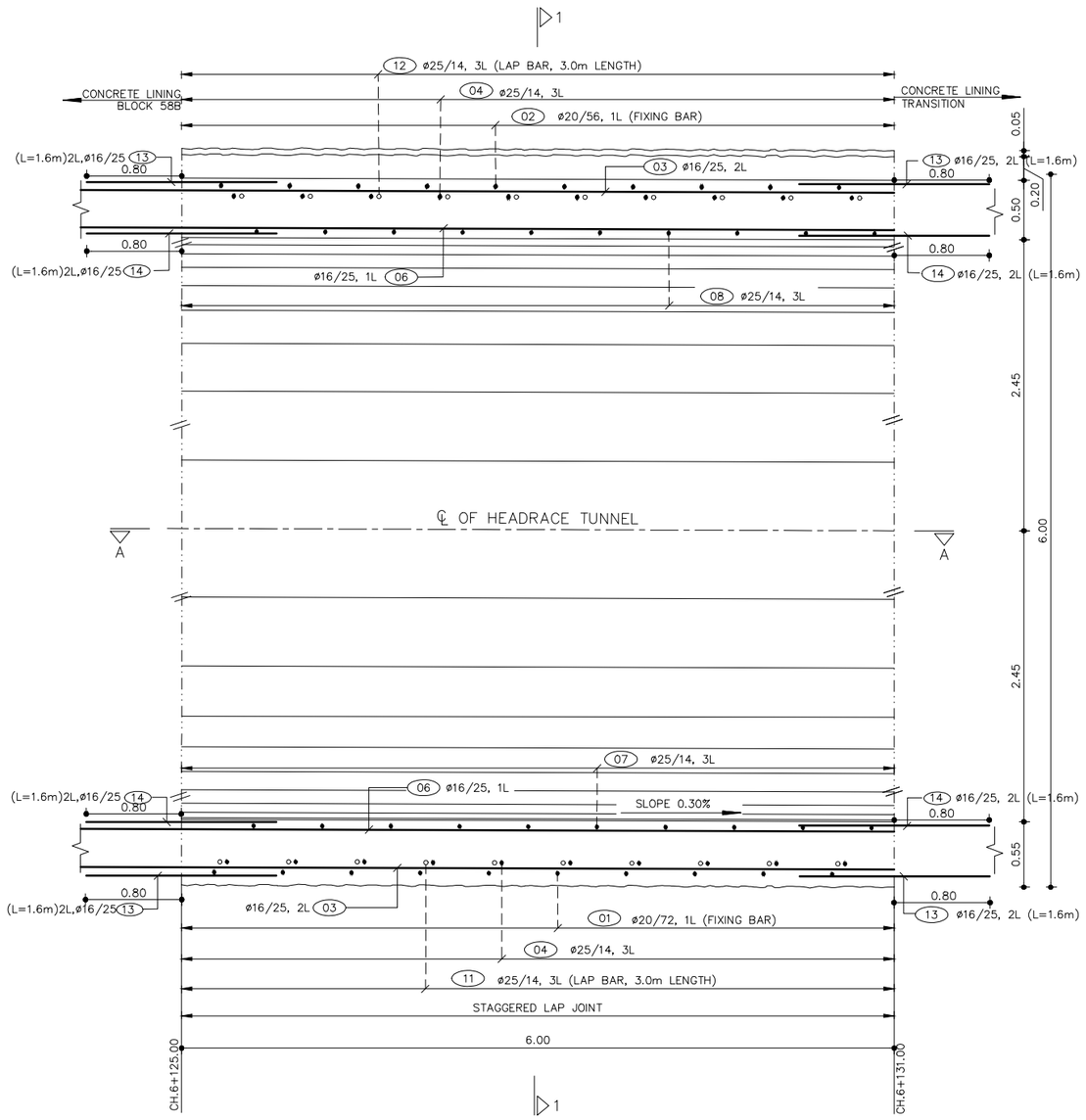
ENGINEER JV NL
CONTRACTOR SINOHYDRO CORPORATION LIMITED

UPPER TAMAKOSHI HYDROELECTRIC PROJECT

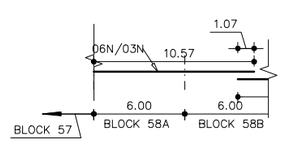
Contractor:	Cad. Sign.	Orig.Sign.	Date
Drawn	Jan Jiwan		10.03.2019
Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

Drwg. Ref. :
HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58A
CH.6+125.00~CH.6+131.00
REINFORCEMENT EXECUTION DRAWING

Scale A1 1:25
Scale A3 1:50
Drwg. No.: UTK-032064-HRT-CL-SZ-R-58A2 REV. A



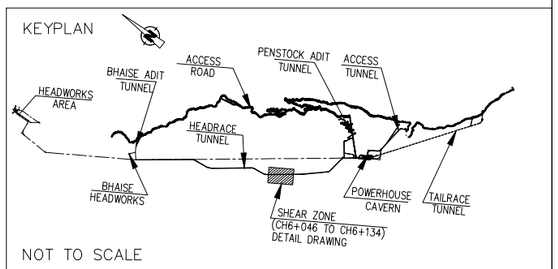
SECTION B–B
BLOCK 58A
SCALE 1:25



NOTES:
1. Dimensions are in meters(m) unless otherwise specified.
2. All elevations are in masl.
3. Refer UTK–032064–HRT–CL–BP–102 Rev–A for block plan

LEGEND:
–//–//– Construction Joint
Coupler

SCALE 1:25
–0.25 0 0.25 0.50 0.75 1.00 1.25 [m]



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK–012065–4420–W 020	Headrace Tunnel Concrete Tunnel,Typical Section–Shear Zone Sections.

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

☐ Approved ☐ Approved as noted ☐ Return for correction ☐ For Information

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ENGINEER – JVNL

UPPER TAMAKOSHI HYDROPOWER LIMITED
Kathmandu,Nepal
UTKHPL

ENGINEER JV NL
CONTRACTOR SINOHYDRO CORPORATION LIMITED

UPPER TAMAKOSHI HYDROELECTRIC PROJECT

Contractor:

	Cad. Sign.	Orig.Sign.	Date
Drawn	Jan Jiwan		10.03.2019
Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

Drwg. Ref. :

HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58A
CH.6+125.00~CH.6+131.00
REINFORCEMENT EXECUTION DRAWING

Scale A1 1:25
Scale A3 1:50

Drwg. No.: UTK–032064–HRT–CL–SZ–R–58A3 REV. A

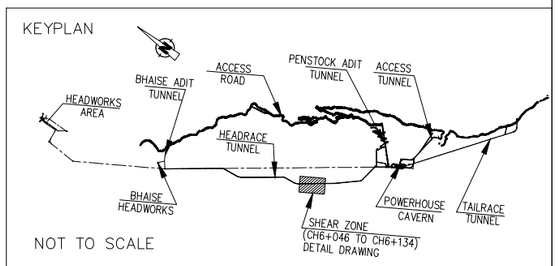
BAR BENDING SCHEDULE OF BLOCK 58A

Bar No.	Steel size (mm)	Shape (cm)	Clear Length (cm)	Numbers	Couplers/ Laps Nos	Total Length (m)	Weight (kg/m)	Total Weight (kg)	Remarks
01	20	1005 R=287.00 ∠=200.7°	1005	11		110.55	2.47	273.06	FIXING BAR 56cm SPACING
02	20	1005 R=287.00 ∠=200.7°	1005	11		110.55	2.47	273.06	FIXING BAR 56cm SPACING
03N	16	1057	1057	72	72	761.04	1.58	1202.44	25cm SPACING
04	25	880 R=283.00 ∠=179.00°	880	43		378.40	3.86	1460.62	14cm SPACING
05	25	880 R=283.00 ∠=179.00°	880	43		378.40	3.86	1460.62	14cm SPACING
06N	16	1057	1057	64	64	676.48	1.58	1068.84	25cm SPACING
07	25	790 R=251.00 ∠=179.61°	790	43		339.70	3.86	1311.24	14cm SPACING
08	25	790 R=251.00 ∠=179.61°	790	43		339.70	3.86	1311.24	14cm SPACING
09	25	300 R=252.00 ∠=68.20°	300	43		129.00	3.86	497.94	LAP BAR 14cm SPACING
10	25	300 R=252.00 ∠=68.20°	300	43		129.00	3.86	497.94	LAP BAR 14cm SPACING
11	25	300 R=283.00 ∠=61.00°	300	43		129.00	3.86	497.94	LAP BAR 14cm SPACING
12	25	300 R=283.00 ∠=61.00°	300	43		129.00	3.86	497.94	LAP BAR 14cm SPACING
13	16	160	160	72		115.20	1.58	182.02	25cm SPACING
14	16	160	160	64		102.40	1.58	161.80	25cm SPACING

SUMMARY OF BAR BENDING QUANTITY FOR HEADRACE TUNNEL BLOCK 58A

Steel size (mm)	Total weight (kg)	Numbers			Weight (kg/no.)			Total Wt.(kg)
		Lap	Coupler	Coupler /Lap for Chair/ spacers	Lap	Coupler	Chair/ spacers	Excl. lap /chair/ spacer
25	7535.48	–	–	–	–	–	–	7535.48
20	564.12	–	–	–	–	–	–	564.12
16	2615.10	136.00	–	–	229.92	–	–	2385.18
Total	10714.70				229.92			10484.78

KEYPLAN



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK–012065–4420–W 020	Headrace Tunnel Concrete Tunnel,Typical Section–Shear Zone Sections.

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

☐ Approved ☐ Approved as noted ☐ Return for correction ☐ For Information

DATE: ..... SIGNATURE: .....
ENGINEER – JVNL

UPPER TAMAKOSHI HYDROPOWER LIMITED
Kathmandu,Nepal
UTKHPL

ENGINEER JV NL
CONTRACTOR SINOHYDRO CORPORATION LIMITED

UPPER TAMAKOSHI HYDROELECTRIC PROJECT

Contractor:

	Cad. Sign.	Orig.Sign.	Date
Drawn	Jan Jiwan		10.03.2019
Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

Drwg. Ref. :

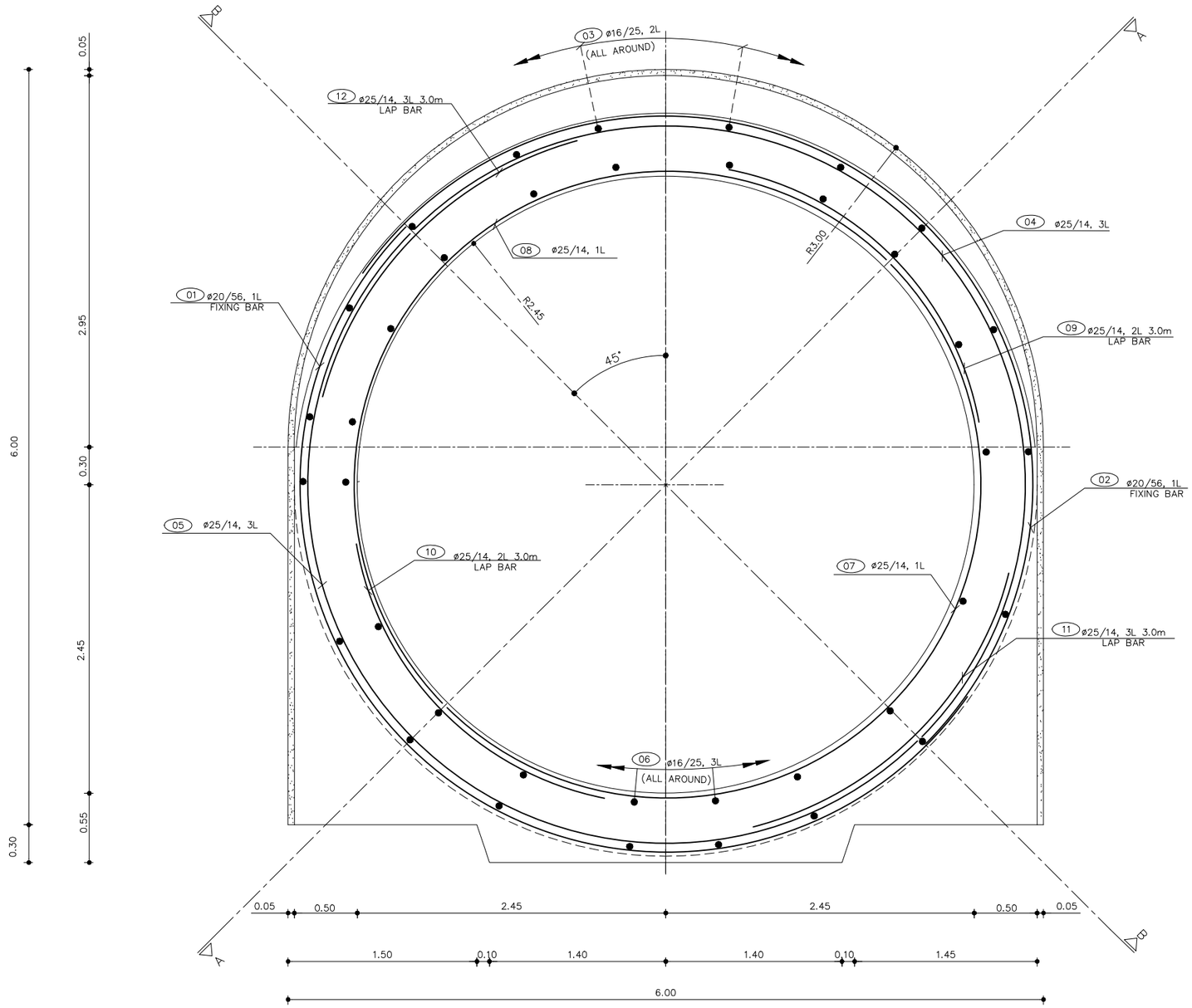
HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58A
CH.6+125.00~CH.6+131.00
REINFORCEMENT EXECUTION DRAWING

NOT TO SCALE

Drwg. No.: UTK–032064–HRT–CL–SZ–BS–58A1 REV. A

NOTES:
1. Dimensions are in meters(m) unless otherwise specified.
2. All elevations are in masl.
3. Refer UTK-032064-HRT-CL-BP-102 Rev-A for block plan.

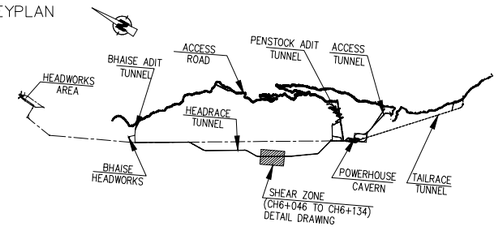
LEGEND:
-//-//- Construction Joint
—■— Coupler



SECTION 1-1
BLOCK 58B
SCALE 1:20

SCALE 1:20
-0.20 0 0.20 0.40 0.60 0.80 1.00 [m]

KEYPLAN



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK-012065-4420-W 020	Headrace Tunnel Concrete Tunnel,Typical Section-Shear Zone Sections.

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

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UPPER TAMAKOSHI HYDROPOWER LIMITED
Kathmandu,Nepal
UTKHPL

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UPPER TAMAKOSHI HYDROELECTRIC PROJECT

Contractor:

	Cad. Sign.	Orig.Sign.	Date
Drawn	Jan Jiwan		10.03.2019
Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

Drwg. Ref. :

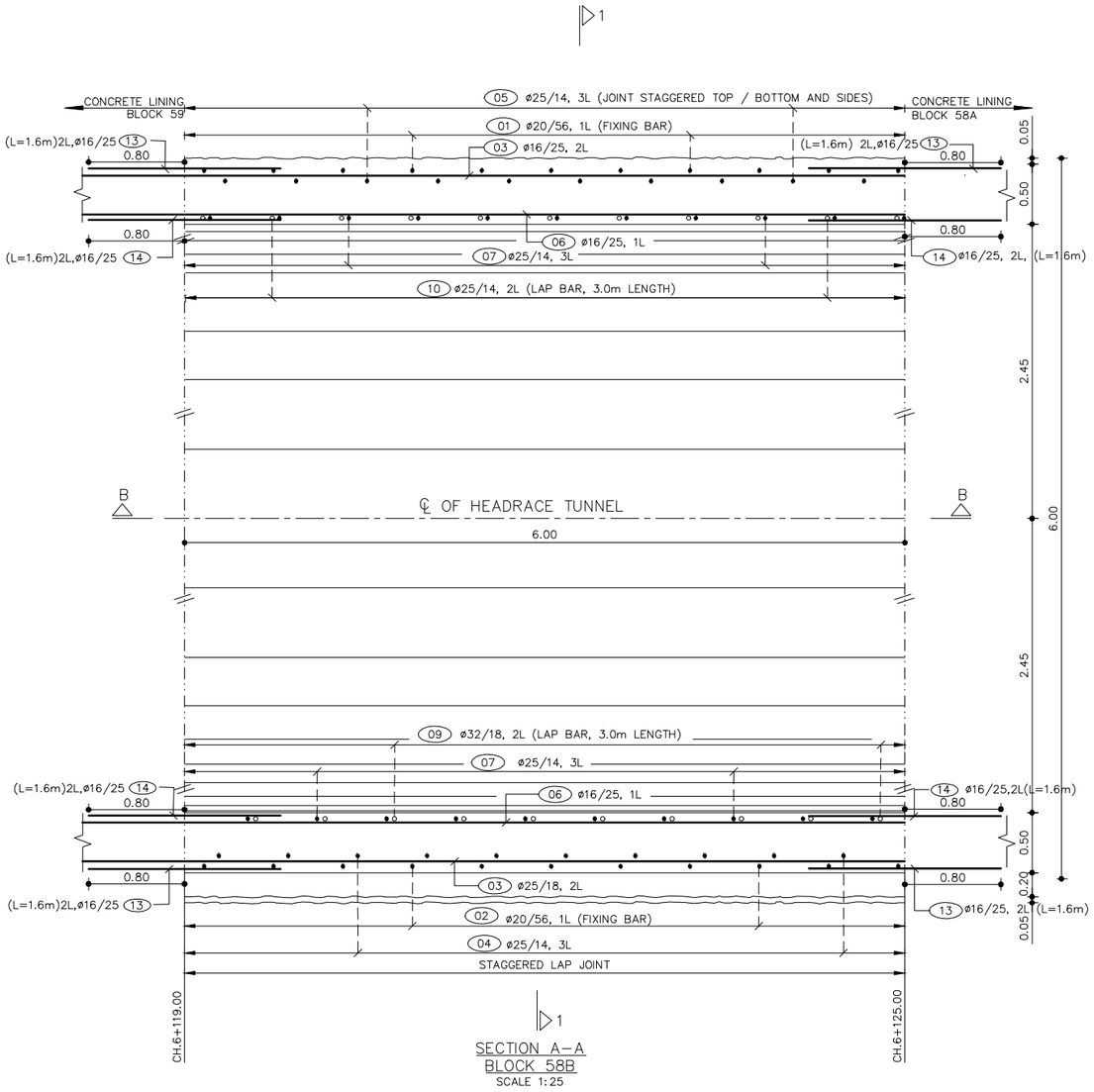
HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58B
CH.6+119.00~CH.6+125.00
REINFORCEMENT EXECUTION DRAWING

Scale A1 1:20
Scale A3 1:40

Drwg. No.: UTK-032064-HRT-CL-SZ-R-58B1 REV. A

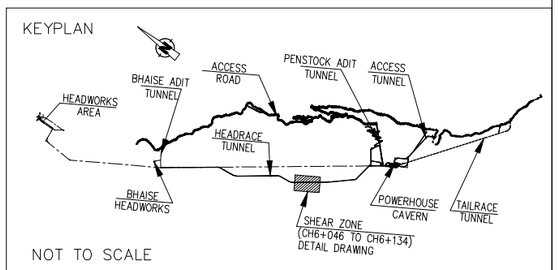
NOTES:
1. Dimensions are in meters(m) unless otherwise specified.
2. All elevations are in masl.
3. Refer UTK-032064-HRT-CL-BP-102 Rev-A for block plan

LEGEND:
-//-//- Construction Joint
—■— Coupler



SECTION A-A
BLOCK 58B
SCALE 1:25

SCALE 1:25
-0.25 0 0.25 0.50 0.75 1.00 1.25 [m]



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK-012065-4420-W 020	Headrace Tunnel Concrete Tunnel,Typical Section-Shear Zone Sections.

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

☐ Approved ☐ Approved as noted ☐ Return for correction ☐ For Information

DATE: ..... SIGNATURE: .....
ENGINEER - JVNL

UPPER TAMAKOSHI HYDROPOWER LIMITED
Kathmandu,Nepal
UTKHPL

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UPPER TAMAKOSHI HYDROELECTRIC PROJECT

Contractor:

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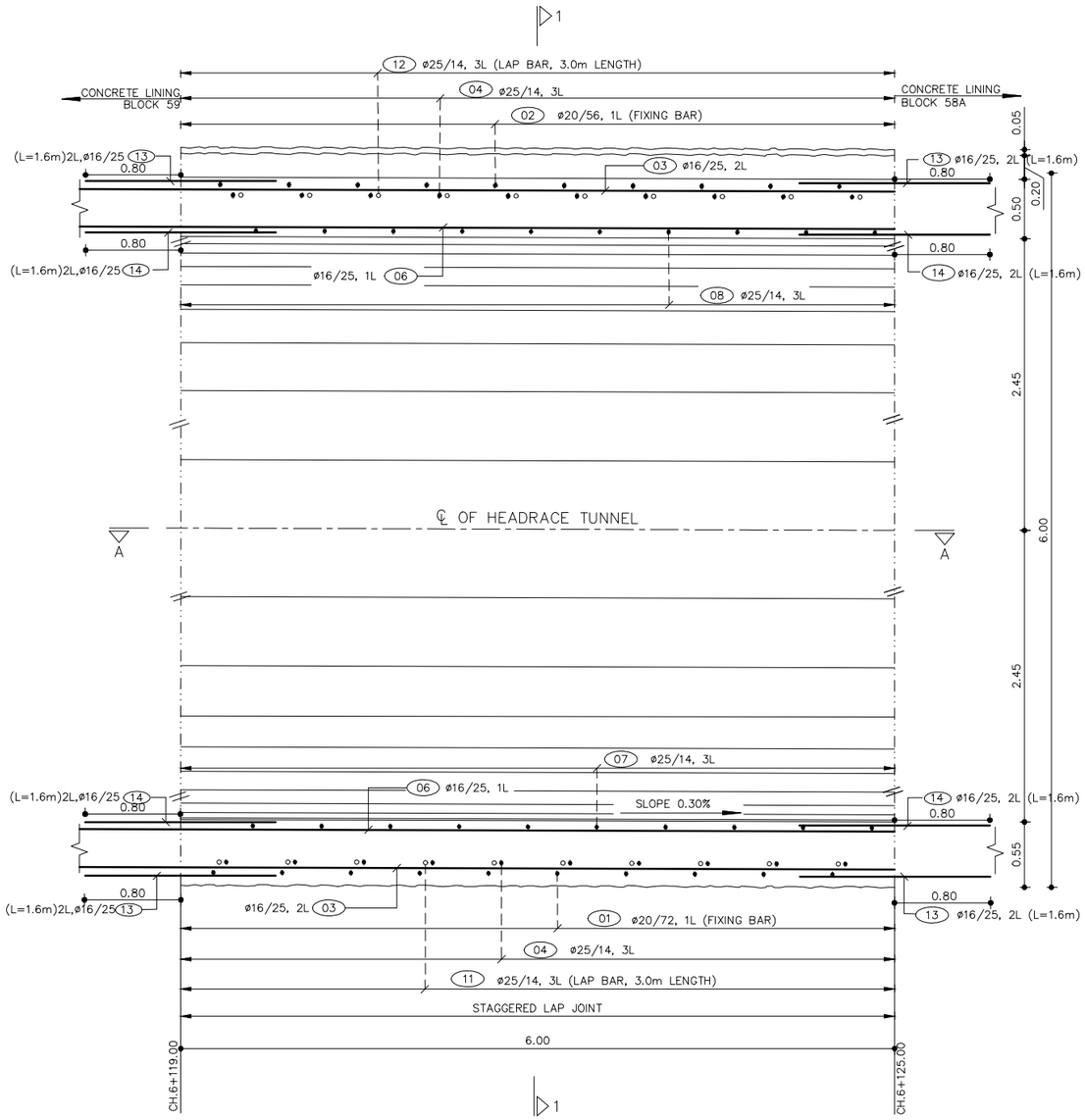
Drawn	Jan Jiwan		10.03.2019
Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

Drwg. Ref. :
HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58B
CH.6+119.00~CH.6+125.00
REINFORCEMENT EXECUTION DRAWING

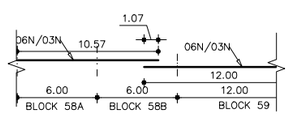
Scale A1 1:25
Scale A3 1:50
Drwg. No.: UTK-032064-HRT-CL-SZ-R-58B2 REV. A

NOTES:
1. Dimensions are in meters(m) unless otherwise specified.
2. All elevations are in masl.
3. Refer UTK-032064-HRT-CL-BP-102 Rev-A for block plan

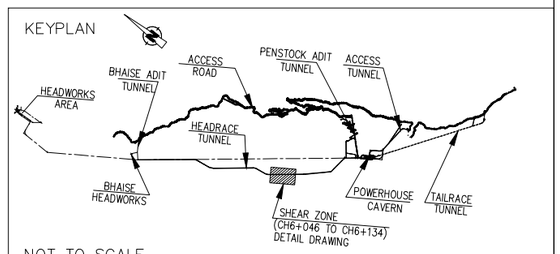
LEGEND:
—//—//— Construction Joint
—■— Coupler



SECTION B-B
BLOCK 58B
SCALE 1:25



SCALE 1:25
-0.25 0 0.25 0.50 0.75 1.00 1.25 [m]



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK-012065-4420-W 020	Headrace Tunnel Concrete Tunnel,Typical Section-Shear Zone Sections.

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

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UPPER TAMAKOSHI HYDROELECTRIC PROJECT

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Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

Drwg. Ref. :

HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58B
CH.6+119.00~CH.6+125.00
REINFORCEMENT EXECUTION DRAWING

Scale A1 1:25
Scale A3 1:50

Drwg. No.: UTK-032064-HRT-CL-SZ-R-58B3 REV. A

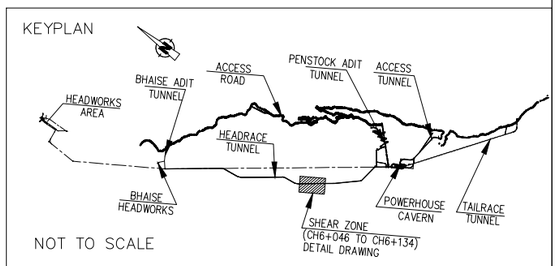
BAR BENDING SCHEDULE OF BLOCK 58B

Bar No.	Steel size (mm)	Shape (cm)	Clear Length (cm)	Numbers	Couplers/ Laps Nos	Total Length (m)	Weight (kg/m)	Total Weight (kg)	Remarks
01	20	1005 R=287.00 ∠=200.7°	1005	11		110.55	2.47	273.06	FIXING BAR 56cm SPACING
02	20	1005 R=287.00 ∠=200.7°	1005	11		110.55	2.47	273.06	FIXING BAR 56cm SPACING
04	25	880 R=283.00 ∠=179.00°	880	43		378.40	3.86	1460.62	14cm SPACING
05	25	880 R=283.00 ∠=179.00°	880	43		378.40	3.86	1460.62	14cm SPACING
07	25	790 R=251.00 ∠=179.61°	790	43		339.70	3.86	1311.24	14cm SPACING
08	25	790 R=251.00 ∠=179.61°	790	43		339.70	3.86	1311.24	14cm SPACING
09	25	300 R=252.00 ∠=68.20°	300	43		129.00	3.86	497.94	LAP BAR 14cm SPACING
10	25	300 R=252.00 ∠=68.20°	300	43		129.00	3.86	497.94	LAP BAR 14cm SPACING
11	25	300 R=283.00 ∠=61.00°	300	43		129.00	3.86	497.94	LAP BAR 14cm SPACING
12	25	300 R=283.00 ∠=61.00°	300	43		129.00	3.86	497.94	LAP BAR 14cm SPACING
13	16	160	160	72		115.20	1.58	182.02	25cm SPACING
14	16	160	160	64		102.40	1.58	161.80	25cm SPACING

SUMMARY OF BAR BENDING QUANTITY FOR HEADRACE TUNNEL BLOCK 58B

Steel size (mm)	Total weight (kg)	Numbers			Weight (kg/no.)			Total Wt.(kg)
		Lap	Coupler	Coupler /Lap for Chair/ spacers	Lap	Coupler	Chair/ spacers	Excl. lap /chair/ spacer
25	7535.48	–	–	–	–	–	–	7535.48
20	564.12	–	–	–	–	–	–	564.12
16	343.82	–	–	–	–	–	–	343.82
Total	8443.42							8443.42

KEYPLAN



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK–012065–4420–W 020	Headrace Tunnel Concrete Tunnel,Typical Section–Shear Zone Sections.

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

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Kathmandu,Nepal
UTKHPL

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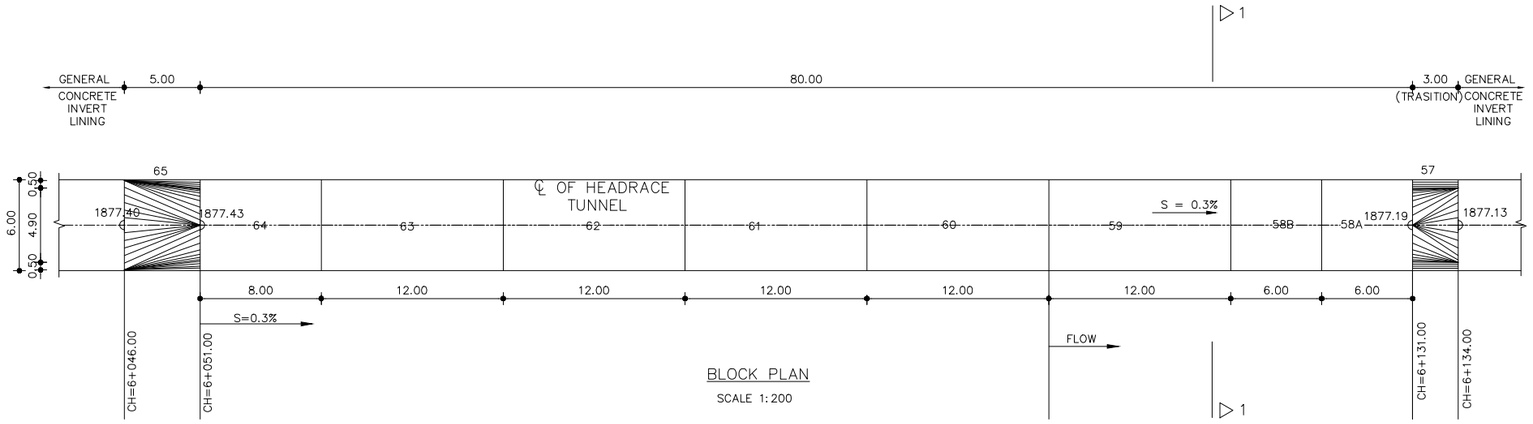
Approved	Sheng D.F.		

Drwg. Ref. :

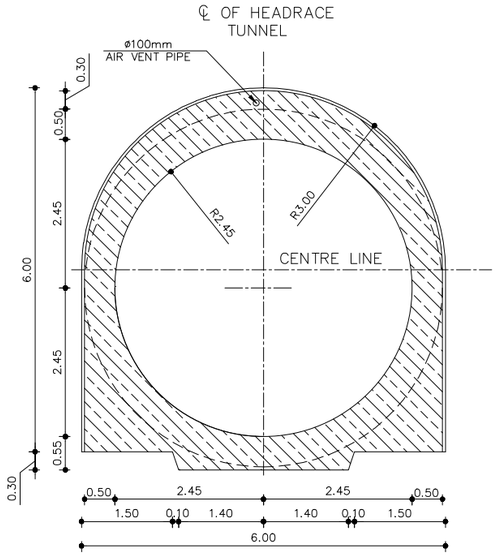
HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58B
CH.6+119.00~CH.6+125.00
REINFORCEMENT EXECUTION DRAWING

NOT TO SCALE

Drwg. No.: UTK–032064–HRT–CL–SZ–BS–58B1 REV. A



BLOCK PLAN
SCALE 1:200



SECTION 1–1
SCALE 1:50

NOTES:

1. Dimensions are in meters(m) unless otherwise specified.
2. All elevations are in masl.
3. Approved drawing is changed due to change in chainage and block number because of postpond of concrete lining in barrier grouting portion of HRT.

LEGEND:

—//—//— Construction Joint

ABBREVIATION:

C2 – 01
- 01: CONCRETE PLACEMENT SEQUENCE
- C2: CONCRETE CLASS

F — BLINDING CONCRETE C12/15

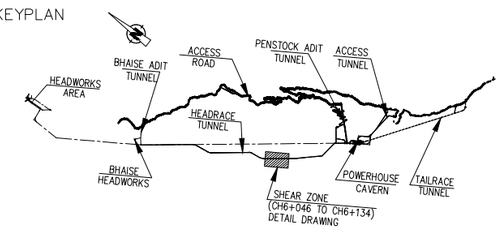
C2 — CONCRETE C30/37

C — SCREEDED FINISH CONCEALED FROM VIEW

B — EXPOSED TO VIEW OR FLOWING WATER

SCALE 1:50
−0.50 0 0.50 1.00 1.50 2.00 2.50 [m]

KEYPLAN



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK–012065–4420–W 020	Headrace Tunnel concrete Tunnel,Typical Section–Shear Zone Sections

Revisions

	Name	Date	Notes
A	Jan Jiwan	10.03.2019	Postpond of Concrete Lining in Barrier Grouting location

☐ Approved ☐ Approved as noted ☐ Return for correction ☐ For Information

DATE: ..... SIGNATURE: .....
ENGINEER – JVNL

UPPER TAMAKOSHI HYDROPOWER LIMITED
Kathmandu,Nepal
UTKHPL

ENGINEER JV NL

CONTRACTOR SINOHYDRO CORPORATION LIMITED

UPPER TAMAKOSHI HYDROELECTRIC PROJECT

Contractor:

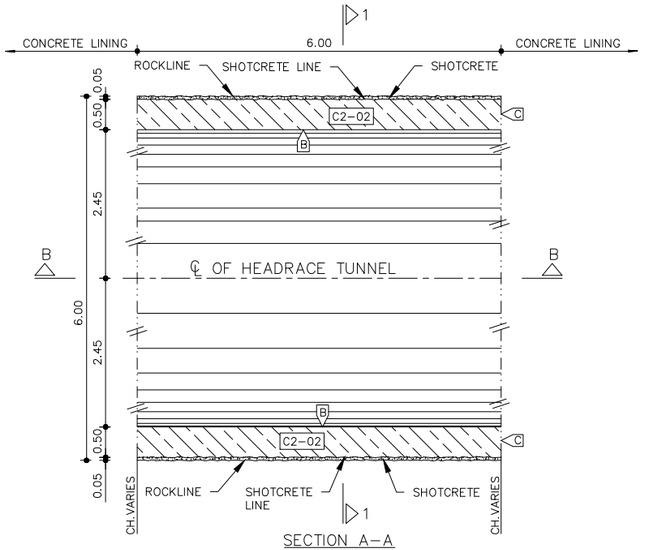
	Cad. Sign.	Orig.Sign.	Date
Drawn	Jan Jiwan		10.03.2019
Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

Drwg. Ref. :

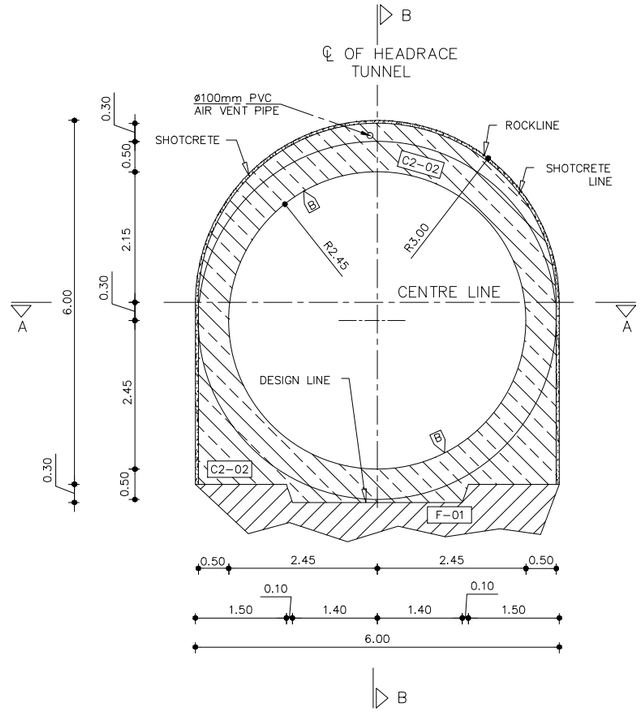
HEADRACE TUNNEL
CONCRETE LINING
BLOCK PLAN
CH.6+051.00~CH.6+131.00
EXECUTION DRAWING

Scale A1 1:50
Scale A3 1:100

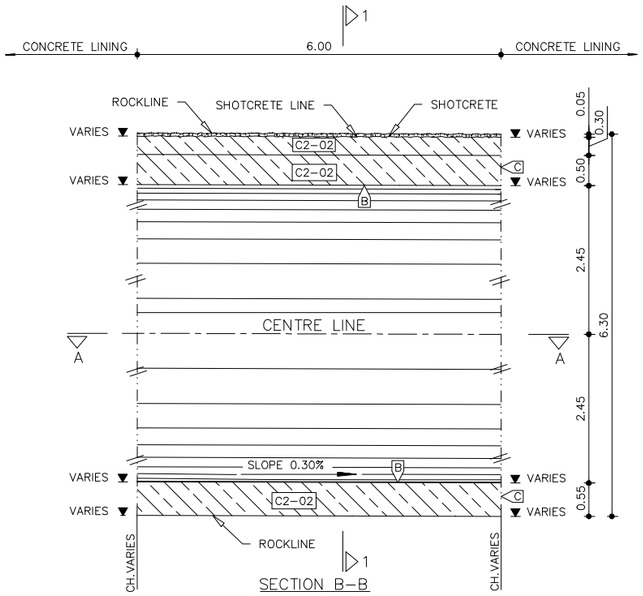
Drwg. No.: UTK–032064–HRT–CL– BP–102 REV. A



SECTION A–A
BLOCK 58A~58B
SCALE 1:50



SECTION 1–1
BLOCK 58A~58B
SCALE 1:50



SECTION B–B
BLOCK 58A~58B
SCALE 1:50

NOTES:
1. Dimensions are in meters(m) unless otherwise specified.
2. All elevations are in masl.
3. Concrete cover is 8 cm.
4. For Block Plan Refer UTK–032064–HRT–CL–BP–102 Rev.A.

LEGEND:

—//—//— Construction Joint

ABBREVIATION:

C2 – 02
- 02 — CONCRETE PLACEMENT SEQUENCE
- C2 — CONCRETE CLASS

F — BLINDING CONCRETE C12/15

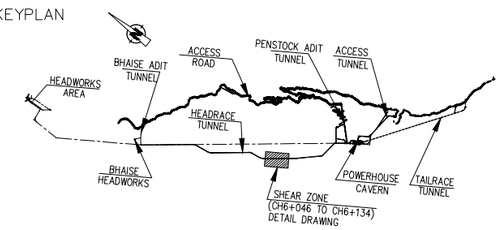
C2 — CONCRETE C30/37

C — SCREEDED FINISH CONCEALED FROM VIEW

B — EXPOSED TO VIEW OR FLOWING WATER

SCALE 1:50
–0.50 0 0.50 1.00 1.50 2.00 2.50 [m]

KEYPLAN



NOT TO SCALE

Reference Drawings

Drwg. No.	Title
UTK–012065–4420–W 020	Headrace Tunnel concrete Tunnel,Typical Section–Shear Zone Sections

Revisions

	Name	Date	Notes
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Contractor: Drwg. Ref. :

	Cad. Sign.	Orig.Sign.	Date
Drawn	Jan Jiwan		10.03.2019
Checked	S. Gautam		
Verified			
Approved	Sheng D.F.		

HEADRACE TUNNEL
CONCRETE LINING
BLOCK 58A~58B
CH.6+119.00~CH.6+131.00
FORMWORK EXECUTION DRAWING

Scale A1 1:50
Scale A3 1:100
Drwg. No.: UTK–032064–HRT–CL–SZ–C–58A REV. A

FORMWORK CALCULATION FOR BLOCK 58A~58B

CONCRETE CLASS – PLACEMENT NO.	FINISHING CLASS	FORM WORK				REMARK
		LENGTH(m)	HEIGHT(m)	NOS	AREA (m2)	
C2 – 02	B	15.39	6.00	2	184.68	CIRCUMFERENCE=15.39m
	C	13.38		2	26.76	X–AREA=13.38 m2

CONCRETE FEATURES FOR BLOCK 58A~58B

CONCRETE CLASS–PLACEMENT NO.	CONCRETE									REMARK
	LENGTH(m)	BREADTH(m)	HEIGHT(m)	CALC. VOLUME (m3)	ADDED VOLUME (m3)	DEDUCTED VOLUME (m3)	ACTUAL VOLUME (m3)	NO. OF BLOCK	TOTAL VOLUME (m3)	
C2 – 02	6.00	13.38		80.28	0.00	0.00	80.28	2	160.56	X–AREA=13.38 m2